

THE MADATRON SOURCE DATA COLLECTION DEVICE

MODEL 721

During the last several years there have been significant increases in the capacity, capability and speed of computer central processing units. At the same time these units have become more attractive economically.

However, the basic problems and costs relating to the collection and entry of data have, for the most part, remained intact during this period. During the last year various attempts have been made to overcome these problems and we witness today the advent of key processing systems which attempt to enter electronically, as opposed to the previous mechanical entry of data. Even with these entry systems, however, the basic problems remain.

1. An extensive network, consisting of encoding, format control, collection of source documents, entry and verification, is necessary to provide computer compatible input data.
2. With such a network the responsibility for the correctness of entered source data is not clear.
3. The entry of data still requires the manual preparation of a large number of encoding forms which must be legible and which require forms design and control.
4. The cost of specialized personnel to handle data entry are increasing and the turnover of such personnel is quite significant.
5. Data entry units are usually designed with the primary concern being the electronics of the device rather than the human interface.

In an attempt to overcome these problems Madatron Corporation, a wholly owned subsidiary of Faradyne Electronics, has developed a new flexible, accurate and low-cost device satisfying requirements for a wide range and variety of applications for collection and origination of source data.

Utilizing Madatron's extremely legible alpha-numeric display, the device allows for the entry of data at the source where it is generated by employees unskilled in operating terminal or data processing equipment. Data is, therefore, collected in real time, or "as it happens" by personnel most knowledgeable of the data and the responsibility for the correctness of entered data can be assigned specifically to such personnel. Additionally, the data is collected and entered in human language and extensive coding formats are not required.

The Madatron unit is as flexible and general as any method or system presently being used and will work with a virtually unlimited set of entry programs and for a wide spectrum of information. Thus the data collected can be entered in any entry format with resultant cost savings in forms design and control and in the preparation of encoding documents. The unit will serve primarily as an "off line" peripheral device to a computer system but many such units can be tied together "on line" with a computer system.

This new source data collection device consists of a command register (or annunciator) and an entry register. The command register displays ten



alpha-numeric display positions which indicate the format and type of information to be included (date, address, description, etc.). These commands are supplied electronically and sequentially as programmed on a program module, or read-only memory drum, which is an integral part of the device. Individual program modules can be provided for various entry programs and formats (i.e., purchasing, shipping, invoicing, etc.), and to change the entry program the operator need only select the appropriate program module and plug it into the device.

In response to the command display, the operator keys in data to be entered and views this data on the twenty alpha-numeric display position entry register. The operator then verifies the data displayed on the entry register prior to the entry of the data onto an output medium.

Appropriate function keys are included in the Madatron Source Data Collection Device for deleting records, repeating commands, and correcting and entering data.

This completely self-contained device can be used with virtually any output recording medium (magnetic tape, punch card, punch tape). The data collected can then be transmitted via telephone or private communication lines (or transported in any manner) to a central processing system or data bank.

Principal benefits of the new Source Data Collection Device from Madatron are:

- . Entry format is assured by sequential visual instructions;
- . Correctness of entered data is assured by visual verification;
- . Data can be originated by regular clerical or unskilled office employees;
- . Reduction in costs associated with recording and verification of data, coding structures, forms design and software design;
- . Reduction in equipment and personnel cost;
- . The device can be located at remote places, such as branch offices, departments, production stations, and field operating centers, or sites where some quantity or output is being measured;
- . Compatible with any output recording medium.

The unit price for the Source Data Collection Device is under \$2500, and orders are being accepted for initial production unit deliveries by September 1970. It is also the intent of Madatron to lease the units at an economically attractive rate. Demonstration units will be shown at the Spring Joint Computer Conference. Several alternative approaches for the marketing of the device are being evaluated by Madatron.

For further information contact Kenneth F. Barber at Madatron,
110 Route 10, Whippany, N. J. Telephone: 201-887-8874.

THE MADATRON DISPLAY

L E T T E R S - J K Z P

N U M B E R S - 2 4 6 8

S Y M B O L S - \$? % !

FEATURING

- excellent legibility
- extreme versatility
- aesthetic appeal

APPLICATIONS

COMPUTER AND DATA PROCESSING

Data Entry Verification
Data Acquisition and Display
Credit and Account Verification

Reservation Systems
Computer Memory Verification
Proof Reading and Text Verification

MANAGEMENT INFORMATION SYSTEMS

Data Retrieval Display
Current Status Verification
Inventory Control

Supervisory Control
Process or Production Control
Stock Market Quotations

COMMAND AND INSTRUCTION SYSTEMS

Annunciators and Indicators
Numeric Control Functions
Operators Monitoring

Assembly and Process Instructions
Complex Instrumentation
Teaching Aids

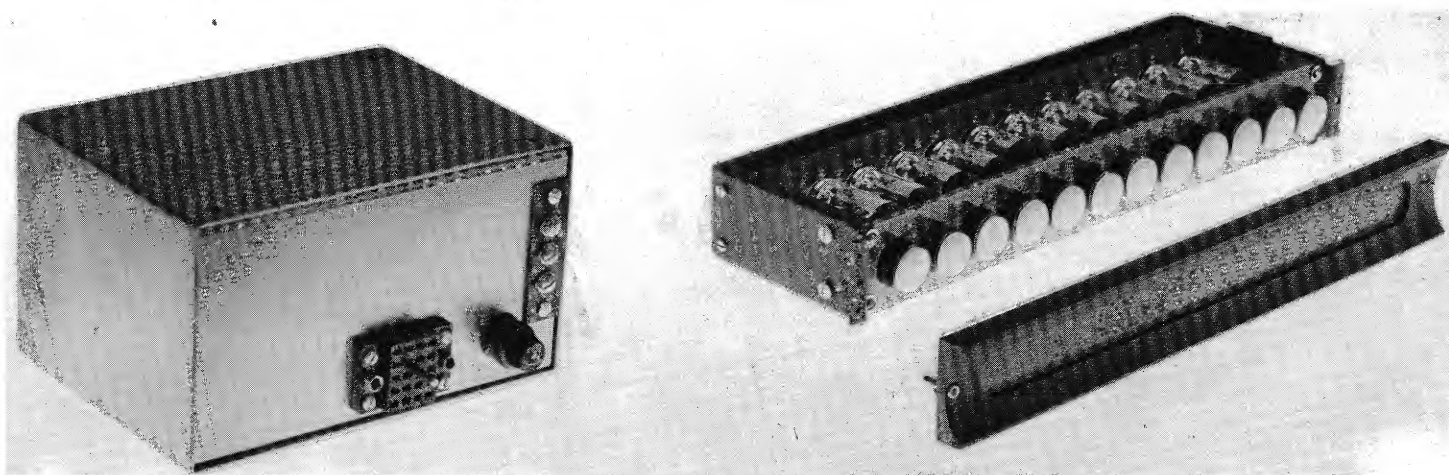
FUNCTIONAL DESCRIPTION

The Madatron Display is capable of providing a wide variety of legible characters and symbols. The display is a complete "turn key" system in that it incorporates all necessary functional elements: the display module which provides the display readout; the enabling decoders which permit the user to select specific characters; the character generator which provides the data necessary to define each character; and a power supply which provides all operating voltages.

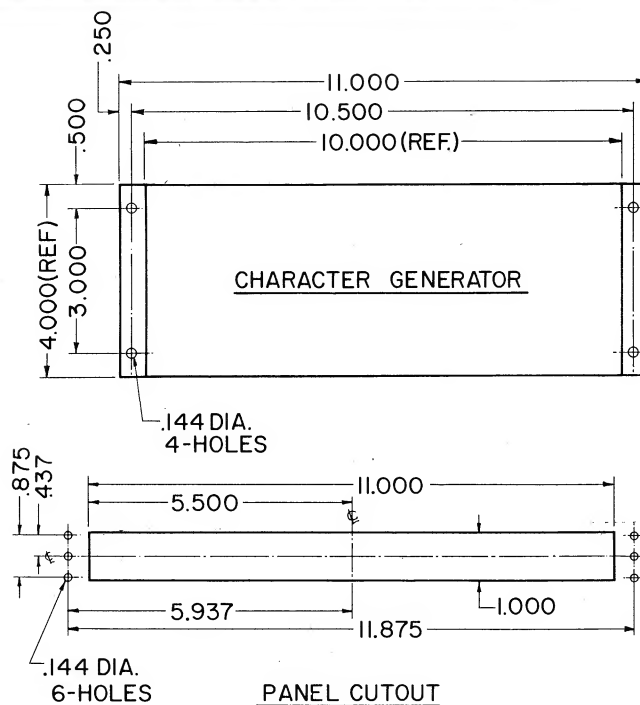
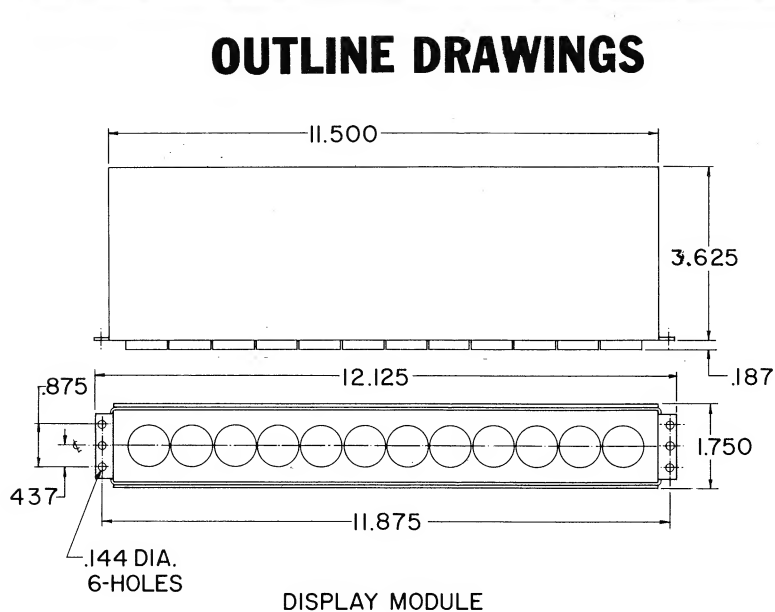
The characters are displayed on the face of each miniature CRT by appropriately un-blanking and blanking a moving beam of electrons. The characters thus displayed consist of many closely spaced lines which, viewed from normal reading distances, merge to form precisely defined characters that are pleasing and comfortable to look at.

The Madatron Display can accommodate two methods of interfacing. Parallel entry permits the user to select any one of 64 characters by connecting high or low voltage levels ("0" or "1") to six lines for each CRT. Serial entry requires only two lines having an appropriate train of high and low voltage pulses. The only other input requirement is 115 volts AC.

STANDARD 12 POSITION DISPLAY



OUTLINE DRAWINGS



OPERATING SPECIFICATIONS

Character height	0.5 inches $\pm$.03 inches
Character aspect ratio	5:4 $\pm$ 10% (height greater than width)
Brightness	700 foot lamberts (typical)
Color	Green (P1 phosphor)
Viewing angle	160°
Code input "1" voltage	2.4 to 5.0 volts
Code input "1" current	1 ma minimum
Code input "0" voltage	0 to 0.8 volts
Code input "0" current	1 ma minimum
Serial input clock pulse width	50 ns minimum
Serial input clear pulse width	50 ns minimum
Serial input data pulse width	50 ns minimum (prior to clock pulse)
("0" or "1" level)	
Operating temperature range	0°C to 55°C
Storage temperature range	-20°C to +75°C
Operating voltage range	105 to 130V, 60Hz.
Power requirement	12 watts + 2 watts/tube maximum
(115 V, 60 Hz.)	

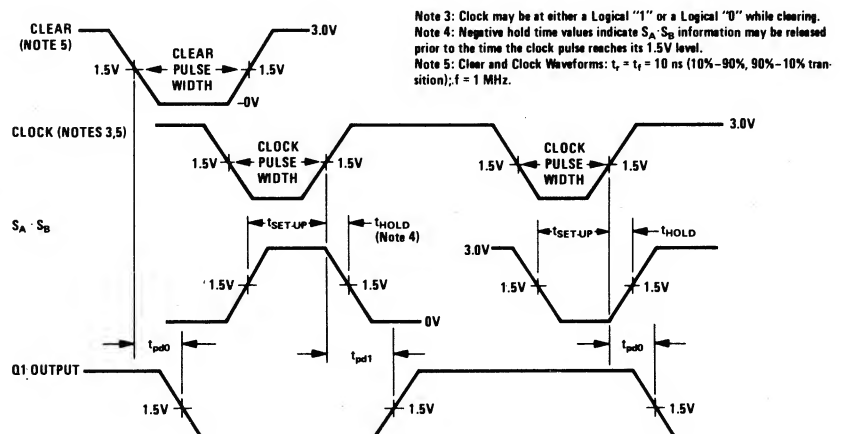
STANDARD CODE

STANDARD CODE FORMAT							
B ₆ →				1	1	0	0
B ₅ →				0	1	0	1
B ₄	B ₃	B ₂	B ₁				
0	0	0	0		0		P
0	0	0	1	!	1	A	Q
0	0	1	0	"	2	B	R
0	0	1	1	#	3	C	S
0	1	0	0	\$	4	D	T
0	1	0	1	%	5	E	U
0	1	1	0	&	6	F	V
0	1	1	1	,	7	G	W
1	0	0	0	(	8	H	X
1	0	0	1	)	9	I	Y
1	0	1	0	*	:	J	Z
1	0	1	1	+	;	K	[
1	1	0	0	,	<	L	\
1	1	0	1	-	=	M	]
1	1	1	0	.	>	N	↑
1	1	1	1	/	?	O	←

Note 1: For parallel entry of input data apply code levels shown in the code format for each tube position.

Note 2: For serial entry of input data apply code levels shown in the code format in the sequence b₆, b₅, b₄, b₃, b₂, b₁. Shift each code by applying one clock pulse for each code bit. To reset all positions apply "0" logic voltage to the clear line.

WAVEFORMS FOR SERIAL ENTRY



ORDERING INFORMATION

The standard Madatron Display consists of a twelve (12) position display module, a character generator module, a four foot interconnecting cable and bezel/filter assembly as shown in the photo and outline drawings. A character capacity of 64 characters per display position is provided in accordance with the standard code format.

To order please specify Part No. DS-12.

PRICE INFORMATION

The price for the standard 12 position Madatron Display (DS-12) is as follows:

Quantity	Price Per System
1—9	\$495.00
10—24	450.00
25—99	415.00
100—500	395.00
500 or more	Contact Factory

SPECIAL OPTIONS

Character Capability in Excess of 64
Characters and/or Non-Standard Symbols

Variable Code Formats

Connection of Several Display Modules to
a Central Character Generator

Adjustable Brightness

Input Power: 220 Volts, 60/50 Hz.

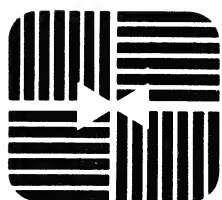
Complete Information Translation and
Display Systems

Variety of Character Sizes and Styles

Remote Location of Display Modules

Display Modules with 7 to 100 positions

Non-Standard Packaging



MADATRON CORPORATION

P.O. Box 172, Princeton, N.J.

609/921-9262

A SUBSIDIARY OF *Paradyne*
ELECTRONICS CORP.

SOURCE DATA COLLECTION DEVICE

MODEL 721

*\$2500
Shift reg. v. Delay line (+ drum ROM ch. mem refresh)*



MADATRON CORPORATION

A SUBSIDIARY OF *Faradyne*
ELECTRONICS CORP.

Flexible - Low Cost - Accurate Data Collection and Origination Device Providing Alpha - Numeric Display

Madatron Corporation has developed a new flexible, accurate, low-cost device satisfying requirements for a wide range and variety of applications for collection and origination of source data for computer processing.

Utilizing Madatron's extremely legible alpha-numeric display, the device allows for the entry of data *at the source* where it is generated. The Model 721 can be operated by employees unskilled in operating terminal or data processing equipment. Data is, therefore, collected

in *real time*, or "as it happens," by personnel most knowledgeable of the data, and the responsibility for the correctness of entered data can be assigned specifically to such personnel. Additionally, the data is collected and entered in *human language*, and extensive coding formats and specially designed forms are not required.

The Madatron unit is as flexible and general as any method or system presently being used and will work with a virtually unlimited set of entry programs and for a wide spectrum of information. Thus the data collected can be entered in any entry format with resultant cost savings in forms design and control and in the preparation and collection of encoding documents. The unit will serve primarily as an "off line" peripheral device to a computer system, but many such units can be tied together "on line" with a computer system.

FUNCTIONAL DESCRIPTION

The Model 721 Source Data Collection Device consists of a *command register* and an *entry register*. The command register displays ten alpha-numeric display positions which indicate the format and type of information to be included (date, customer name, address, description, etc.). These commands are supplied electronically and sequentially as programmed on a *program module*, or read-only memory drum, which is an integral part of the device. Individual program modules can be provided for various entry programs and formats (i.e., purchasing, shipping, invoicing, etc.), and to change the entry program, the operator need only select the appropriate program module and plug it into the device.

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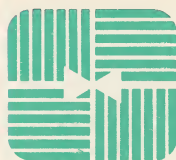
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This completely self-contained device can be used as an "on line" entry device or as a remote device with virtually any output recording medium (magnetic tape,

punch card, punch tape). The data collected can then be transmitted via telephone or private communications lines (or transported in any manner) to a central processing system or data bank.

Principal Benefits

- Entry format is assured by sequential visual instructions.
- Correctness of entered data is assured by visual verification.
- Data can be originated by regular clerical or unskilled office employees.
- Reduction in costs associated with recording and verification of data, coding structures, forms design and software design.
- Reduction in equipment and personnel cost.
- The device can be located at remote places, such as branch offices, departments, production stations, and field operating centers, or sites where some quantity or output is being measured.
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